

SEQUENCE LISTING

<110> Aptus Genomics, Inc.
YAO, Yong
CAO, Liang

<120> Novel Cell-Based Assays for G-Protein-Coupled Receptor-Mediated Activities

<130> 53735-5004-US

<150> 60/330,663

<151> 2001-10-26

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<170> PatentIn version 3.1

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<211> 1995

<212> DNA

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<222> (1)..(1992)

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Leu Glu Arg Phe Arg Gly Pro Glu Leu Gln Thr Val Thr Thr His Gln	
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ggg gat gac aaa ggc ggc aag gac ggc gag gga aag ggc acc aaa aag	384
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gat ccc aag aaa ttg cga gac aac tat att cac act ttg cag ttc aaa Asp Pro Lys Lys Leu Arg Asp Asn Tyr Ile His Thr Leu Gln Phe Lys 210 215 220	672
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210 215 220

Leu Asp Val Ala Ser Ile Ile Pro Thr Asp Leu Ile Tyr Phe Ala Val
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His Trp Asn Ala Cys Ile Tyr Tyr Val Ile Ser Lys Ser Ile Gly Phe
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Gly Val Asp Thr Trp Val Tyr Pro Asn Ile Thr Asp Pro Glu Tyr Gly
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Leu Phe Val Ile Phe Asp Phe Leu Ile Gly Val Leu Ile Phe Ala Thr
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His Arg Ala Gly Ser Arg Pro Gln Ser Val Ala Ala Asp Asp Asp Thr
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tct cca gaa cta caa agg ctg gca gag atg gat acc cct cgg agg ggg 192
Ser Pro Glu Leu Gln Arg Leu Ala Glu Met Asp Thr Pro Arg Arg Gly
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Trp	Leu	Val	Leu	Asp	Tyr	Phe	Ser	Asp	Thr	Val	Tyr	Ile	Ala	Asp	Leu		
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Ile	Ile	Arg	Leu	Arg	Thr	Gly	Phe	Leu	Glu	Gln	Gly	Leu	Leu	Val	Lys		
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Asp	Pro	Lys	Lys	Leu	Arg	Asp	Asn	Tyr	Ile	His	Thr	Leu	Gln	Phe	Lys		
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Arg	Met	Phe	Glu	Phe	Phe	Asp	Arg	Thr	Glu	Thr	Arg	Thr	Ser	Tyr	Pro		
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aac	atc	ttc	cga	atc	agc	aac	ctg	gtc	ctt	tac	atc	ttg	gtc	atc	atc		864
Asn	Ile	Phe	Arg	Ile	Ser	Asn	Leu	Val	Leu	Tyr	Ile	Leu	Val	Ile	Ile		
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Asn	Leu	Pro	Ala	Lys	Leu	Arg	Ala	Glu	Ile	Ala	Ile	Asn	Val	His	Leu	
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Lys	Glu	Gly	Lys	Leu	Ala	Val	Val	Ala	Asp	Asp	Gly	Val	Thr	Gln	Tyr	
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Trp Ala Asn Lys Asn Phe Arg Glu Glu Glu Pro Arg Pro Asp Ser Phe
 85 90 95

Leu Glu Arg Phe Arg Gly Pro Glu Leu Gln Thr Val Thr Thr His Gln
 100 105 110

Gly Asp Asp Lys Gly Gly Lys Asp Gly Glu Gly Lys Gly Thr Lys Lys
 115 120 125

Lys Phe Glu Leu Phe Val Leu Asp Pro Ala Gly Asp Trp Tyr Tyr Arg
 130 135 140

Trp Leu Phe Val Ile Ala Met Pro Val Leu Tyr Asn Trp Cys Leu Leu
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Val Ala Arg Ala Cys Phe Ser Asp Leu Gln Arg Asn Tyr Phe Val Val
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Trp Leu Val Leu Asp Tyr Phe Ser Asp Thr Val Tyr Ile Ala Asp Leu
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Ile Ile Arg Leu Arg Thr Gly Phe Leu Glu Gln Gly Leu Leu Val Lys
195 200 205

Asp Pro Lys Lys Leu Arg Asp Asn Tyr Ile His Thr Leu Gln Phe Lys
210 215 220

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225 230 235 240

Gly Ile His Ser Pro Glu Val Arg Phe Asn Arg Leu Leu His Phe Ala
245 250 255

Arg Met Phe Glu Phe Phe Asp Arg Thr Glu Thr Arg Thr Ser Tyr Pro
260 265 270

Asn Ile Phe Arg Ile Ser Asn Leu Val Leu Tyr Ile Leu Val Ile Ile
275 280 285

His Trp Asn Ala Cys Ile Tyr Tyr Val Ile Ser Lys Ser Ile Gly Phe
290 295 300

Gly Val Asp Thr Trp Val Tyr Pro Asn Ile Thr Asp Pro Glu Tyr Gly
305 310 315 320

Tyr Leu Ala Arg Glu Tyr Ile Tyr Cys Leu Tyr Trp Ser Thr Leu Thr
325 330 335

Leu Thr Thr Ile Gly Glu Thr Pro Pro Pro Val Lys Asp Glu Glu Tyr
340 345 350

Leu Phe Val Ile Phe Asp Phe Leu Ile Gly Val Leu Ile Phe Ala Thr
355 360 365

Ile Val Gly Asn Val Gly Ser Met Ile Ser Asn Met Asn Ala Thr Arg
370 375 380

Ala Glu Phe Gln Ala Lys Ile Asp Ala Val Lys His Tyr Met Gln Phe
385 390 395 400

Arg Lys Val Ser Lys Asp Met Glu Ala Lys Val Ile Lys Trp Phe Asp
405 410 415

Tyr Leu Trp Thr Asn Lys Lys Thr Val Asp Glu Arg Glu Val Leu Lys
420 425 430

Asn Leu Pro Ala Lys Leu Arg Ala Glu Ile Ala Ile Asn Val His Leu

435 440 445

Ser Thr Leu Lys Lys Val Arg Ile Phe Gln Asp Cys Glu Ala Gly Leu
450 455 460

Leu Val Glu Leu Val Leu Lys Leu Arg Pro Gln Val Phe Ser Pro Gly
465 470 475 480

Asp Tyr Ile Cys Arg Lys Gly Asp Ile Gly Lys Glu Met Tyr Ile Ile
485 490 495

Lys Glu Gly Lys Leu Ala Val Val Ala Asp Asp Gly Val Thr Gln Tyr
500 505 510

Ala Leu Leu Ser Ala Gly Ser Cys Phe Gly Glu Ile Ser Ile Leu Asn
515 520 525

Ile Lys Gly Ser Lys Met Gly Asn Arg Arg Thr Ala Asn Ile Arg Ser
530 535 540

Leu Gly Tyr Ser Asp Leu Phe Cys Leu Ser Lys Asp Asp Leu Met Glu
545 550 555 560

Ala Val Thr Glu Ala Pro Asp Ala Lys Lys Val Leu Glu Glu Arg Gly
565 570 575

Arg Glu Ile Leu Met Lys Glu Gly Leu Leu Asp Glu Asn Glu Val Ala
580 585 590

Ala Ser Met Glu Val Asp Val Gln Glu Lys Leu Glu Gln Leu Glu Thr
595 600 605

Asn Met Asp Thr Leu Tyr Thr Arg Phe Ala Arg Leu Leu Ala Glu Tyr
610 615 620

Thr Gly Ala Gln Gln Lys Leu Lys Gln Arg Ile Thr Val Leu Glu Thr
625 630 635 640

Lys Met Lys Gln Asn His Glu Asp Asp Tyr Leu Ser Asp Gly Ile Asn
645 650 655

Thr Pro Glu Pro Thr Ala Ala Glu
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<210> 5
<211> 1995

<212> DNA
<213> Rattus norvegicus

<220>
<221> CDS
<222> (1)..(1992)
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Met Met Thr Glu Lys Ser Asn Gly Val Lys Ser Ser Pro Ala Asn Asn
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cat aac cat cat cct cct cct tct atc aag gcc aat ggc aaa gat gac 96
His Asn His His Pro Pro Pro Ser Ile Lys Ala Asn Gly Lys Asp Asp
20 25 30

cac agg gca gga agc aga cca cag tct gtg gca gct gat gat gac act 144
His Arg Ala Gly Ser Arg Pro Gln Ser Val Ala Ala Asp Asp Asp Thr
35 40 45

tct cca gaa cta caa agg ctg gca gag atg gat acc cct cgg agg ggg 192
Ser Pro Glu Leu Gln Arg Leu Ala Glu Met Asp Thr Pro Arg Arg Gly
50 55 60

agg ggt ggc ttc caa agg att gtt cgc ctg gtg ggg gtc atc agg gac 240
Arg Gly Gly Phe Gln Arg Ile Val Arg Leu Val Gly Val Ile Arg Asp
65 70 75 80

tgg gcc aac aag aat ttc cgt gaa gag gaa cca agg cct gac tcc ttc 288
Trp Ala Asn Lys Asn Phe Arg Glu Glu Glu Pro Arg Pro Asp Ser Phe
85 90 95

cta gag cgt ttc cgt ggg cca gaa ctc cag act gtg aca acc cat cag 336
Leu Glu Arg Phe Arg Gly Pro Glu Leu Gln Thr Val Thr Thr His Gln
100 105 110

ggg gat gac aaa ggc ggc aag gac ggc gag gga aag ggc acc aaa aag 384
Gly Asp Asp Lys Gly Gly Lys Asp Gly Glu Gly Lys Gly Thr Lys Lys
115 120 125

aaa ttt gaa ctg ttt gtt ttg gac cca gcc gga gac tgg tat tac cgt 432
Lys Phe Glu Leu Phe Val Leu Asp Pro Ala Gly Asp Trp Tyr Tyr Arg
130 135 140

tgg ttg ttt gtc att gcc atg cct gtt ctt tac aac tgg tgc ctg ttg 480
Trp Leu Phe Val Ile Ala Met Pro Val Leu Tyr Asn Trp Cys Leu Leu
145 150 155 160

gtg gcc aga gcc tgc ttc agt gat cta cag aga aac tat ttt gtg gta 528
Val Ala Arg Ala Cys Phe Ser Asp Leu Gln Arg Asn Tyr Phe Val Val
165 170 175

tgg ctg gtg ctg gac tac ttc tca gac act gtc tat atc gca gac ctc 576
Trp Leu Val Leu Asp Tyr Phe Ser Asp Thr Val Tyr Ile Ala Asp Leu
180 185 190

atc att cgg ctg cgc aca ggc ttc cta gaa cag ggg ctc ttg gtc aaa 624
Ile Ile Arg Leu Arg Thr Gly Phe Leu Glu Gln Gly Leu Leu Val Lys
195 200 205

gat ccc aag aaa ttg cga gac aac tat att cac act ttg cag ttc aaa Asp Pro Lys Lys Leu Arg Asp Asn Tyr Ile His Thr Leu Gln Phe Lys 210 215 220	672
ttg gat gtg gct tct atc att ccc act gac ctt atc tat ttt gct gtg Leu Asp Val Ala Ser Ile Ile Pro Thr Asp Leu Ile Tyr Phe Ala Val 225 230 235 240	720
ggg atc cac agc cct gag gta cgc ttc aac cgt cta tta cac ttt gcc Gly Ile His Ser Pro Glu Val Arg Phe Asn Arg Leu Leu His Phe Ala 245 250 255	768
cgt atg ttt gag ttc ttt gac cgc act gag aca cgc acc agc tac ccc Arg Met Phe Glu Phe Phe Asp Arg Thr Glu Thr Arg Thr Ser Tyr Pro 260 265 270	816
aac atc ttc cga atc agc aat ctg gtc ctt tac atc ttg gtc atc atc Asn Ile Phe Arg Ile Ser Asn Leu Val Leu Tyr Ile Leu Val Ile Ile 275 280 285	864
cac tgg aat gct tgt att tat tat gtt att tct aag tcc att ggc ttt His Trp Asn Ala Cys Ile Tyr Tyr Val Ile Ser Lys Ser Ile Gly Phe 290 295 300	912
gga gtt gac acc tgg gtt tac ccc aac att act gac cct gaa tat ggc Gly Val Asp Thr Trp Val Tyr Pro Asn Ile Thr Asp Pro Glu Tyr Gly 305 310 315 320	960
tac ctg gct aga gag tac att tac tgt ctt tac tgg tcc aca ctg acc Tyr Leu Ala Arg Glu Tyr Ile Tyr Cys Leu Tyr Trp Ser Thr Leu Thr 325 330 335	1008
ctc acc acc att gga gag aca cca ccc cct gta aag gat gag gag tac Leu Thr Thr Ile Gly Glu Thr Pro Pro Val Lys Asp Glu Glu Tyr 340 345 350	1056
cta ttt gtc atc ttt gac ttc ttg att ggt gtc ctc atc ttt gcc act Leu Phe Val Ile Phe Asp Phe Leu Ile Gly Val Leu Ile Phe Ala Thr 355 360 365	1104
att gtg gga aat gtg ggc tcc atg atc tcc aac atg aat gcc aca cga Ile Val Gly Asn Val Gly Ser Met Ile Ser Asn Met Asn Ala Thr Arg 370 375 380	1152
gca gag ttc cag gcc aag att gat gct gtc aaa cac tac atg cag ttc Ala Glu Phe Gln Ala Lys Ile Asp Ala Val Lys His Tyr Met Gln Phe 385 390 395 400	1200
cga aag gtc agc aaa gac atg gaa gcc aag gtc atc aaa tgg ttt gac Arg Lys Val Ser Lys Asp Met Glu Ala Lys Val Ile Lys Trp Phe Asp 405 410 415	1248
tac ttg tgg acc aat aag aag aca gta gat gaa cga gaa gtc ctc aag Tyr Leu Trp Thr Asn Lys Lys Thr Val Asp Glu Arg Glu Val Leu Lys 420 425 430	1296
aac ctg cca gca aag ctc agg gct gag ata gcc att aat gtt cac ttg Asn Leu Pro Ala Lys Leu Arg Ala Glu Ile Ala Ile Asn Val His Leu 435 440 445	1344

tcc act ctg aag aaa gtg cgc ata ttc cag gat tgg gaa gct ggc cta	1392
Ser Thr Leu Lys Lys Val Arg Ile Phe Gln Asp Trp Glu Ala Gly Leu	
450 455 460	
ctg gtg gaa ctg gta ctg aag ctt cgt cct cag gtc ttt agt cct gga	1440
Leu Val Glu Leu Val Leu Lys Leu Arg Pro Gln Val Phe Ser Pro Gly	
465 470 475 480	
gat tat att tgc cgt aag ggg gac att ggc aag gaa atg tac atc atc	1488
Asp Tyr Ile Cys Arg Lys Gly Asp Ile Gly Lys Glu Met Tyr Ile Ile	
485 490 495	
aag gag ggc aag ttg gca gtg gta gct gat gat ggc gtg act cag tat	1536
Lys Glu Gly Lys Leu Ala Val Val Ala Asp Asp Gly Val Thr Gln Tyr	
500 505 510	
gcc ttg ctc tca gct ggg agc tgc ttt ggt gag att agt atc ctt aac	1584
Ala Leu Leu Ser Ala Gly Ser Cys Phe Gly Glu Ile Ser Ile Leu Asn	
515 520 525	
att aag ggt agc aaa atg ggc aat cga cgt act gct aat atc cgt agc	1632
Ile Lys Gly Ser Lys Met Gly Asn Arg Arg Thr Ala Asn Ile Arg Ser	
530 535 540	
ctg ggc tac tca gat ctc ttc tgc ttg tcc aag gac gat ctt atg gaa	1680
Leu Gly Tyr Ser Asp Leu Phe Cys Leu Ser Lys Asp Asp Leu Met Glu	
545 550 555 560	
gct gta act gag tat cct gat gcc aag aag gtc ctg gag gaa cgg ggt	1728
Ala Val Thr Glu Tyr Pro Asp Ala Lys Lys Val Leu Glu Glu Arg Gly	
565 570 575	
agg gag atc ctg atg aag atg ggt cta ctg gat gag aat gaa gtg gca	1776
Arg Glu Ile Leu Met Lys Met Gly Leu Leu Asp Glu Asn Glu Val Ala	
580 585 590	
gct agt atg gag gta gat gtt cag gag aag ctg gaa cag ttg gag aca	1824
Ala Ser Met Glu Val Asp Val Gln Glu Lys Leu Glu Gln Leu Glu Thr	
595 600 605	
aac atg gat acc ttg tac act cgc ttt gcc cgc ctg ctg gct gag tac	1872
Asn Met Asp Thr Leu Tyr Thr Arg Phe Ala Arg Leu Leu Ala Glu Tyr	
610 615 620	
act ggg gcc cag cag aag ctc aag caa cgc atc aca gtg cta gag acc	1920
Thr Gly Ala Gln Gln Lys Leu Lys Gln Arg Ile Thr Val Leu Glu Thr	
625 630 635 640	
aag atg aaa cag aac cat gag gat gat tat cta tca gat ggg ata aac	1968
Lys Met Lys Gln Asn His Glu Asp Asp Tyr Leu Ser Asp Gly Ile Asn	
645 650 655	
act cct gag cca act gct gct gaa taa	1995
Thr Pro Glu Pro Thr Ala Ala Glu	
660	

<210> 6
 <211> 664
 <212> PRT
 <213> Rattus norvegicus

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Met Met Thr Glu Lys Ser Asn Gly Val Lys Ser Ser Pro Ala Asn Asn
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His Asn His His Pro Pro Pro Ser Ile Lys Ala Asn Gly Lys Asp Asp
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His Arg Ala Gly Ser Arg Pro Gln Ser Val Ala Ala Asp Asp Asp Thr
35 40 45

Ser Pro Glu Leu Gln Arg Leu Ala Glu Met Asp Thr Pro Arg Arg Gly
50 55 60

Arg Gly Gly Phe Gln Arg Ile Val Arg Leu Val Gly Val Ile Arg Asp
65 70 75 80

Trp Ala Asn Lys Asn Phe Arg Glu Glu Glu Pro Arg Pro Asp Ser Phe
85 90 95

Leu Glu Arg Phe Arg Gly Pro Glu Leu Gln Thr Val Thr Thr His Gln
100 105 110

Gly Asp Asp Lys Gly Gly Lys Asp Gly Glu Gly Lys Gly Thr Lys Lys
115 120 125

Lys Phe Glu Leu Phe Val Leu Asp Pro Ala Gly Asp Trp Tyr Tyr Arg
130 135 140

Trp Leu Phe Val Ile Ala Met Pro Val Leu Tyr Asn Trp Cys Leu Leu
145 150 155 160

Val Ala Arg Ala Cys Phe Ser Asp Leu Gln Arg Asn Tyr Phe Val Val
165 170 175

Trp Leu Val Leu Asp Tyr Phe Ser Asp Thr Val Tyr Ile Ala Asp Leu
180 185 190

Ile Ile Arg Leu Arg Thr Gly Phe Leu Glu Gln Gly Leu Leu Val Lys
195 200 205

Asp Pro Lys Lys Leu Arg Asp Asn Tyr Ile His Thr Leu Gln Phe Lys
210 215 220

Leu Asp Val Ala Ser Ile Ile Pro Thr Asp Leu Ile Tyr Phe Ala Val
225 230 235 240

Gly Ile His Ser Pro Glu Val Arg Phe Asn Arg Leu Leu His Phe Ala
245 250 255

Arg Met Phe Glu Phe Phe Asp Arg Thr Glu Thr Arg Thr Ser Tyr Pro
260 265 270

Asn Ile Phe Arg Ile Ser Asn Leu Val Leu Tyr Ile Leu Val Ile Ile
275 280 285

His Trp Asn Ala Cys Ile Tyr Tyr Val Ile Ser Lys Ser Ile Gly Phe
290 295 300

Gly Val Asp Thr Trp Val Tyr Pro Asn Ile Thr Asp Pro Glu Tyr Gly
305 310 315 320

Tyr Leu Ala Arg Glu Tyr Ile Tyr Cys Leu Tyr Trp Ser Thr Leu Thr
325 330 335

Leu Thr Thr Ile Gly Glu Thr Pro Pro Pro Val Lys Asp Glu Glu Tyr
340 345 350

Leu Phe Val Ile Phe Asp Phe Leu Ile Gly Val Leu Ile Phe Ala Thr
355 360 365

Ile Val Gly Asn Val Gly Ser Met Ile Ser Asn Met Asn Ala Thr Arg
370 375 380

Ala Glu Phe Gln Ala Lys Ile Asp Ala Val Lys His Tyr Met Gln Phe
385 390 395 400

Arg Lys Val Ser Lys Asp Met Glu Ala Lys Val Ile Lys Trp Phe Asp
405 410 415

Tyr Leu Trp Thr Asn Lys Lys Thr Val Asp Glu Arg Glu Val Leu Lys
420 425 430

Asn Leu Pro Ala Lys Leu Arg Ala Glu Ile Ala Ile Asn Val His Leu
435 440 445

Ser Thr Leu Lys Lys Val Arg Ile Phe Gln Asp Trp Glu Ala Gly Leu
450 455 460

Leu Val Glu Leu Val Leu Lys Leu Arg Pro Gln Val Phe Ser Pro Gly
465 470 475 480

Asp Tyr Ile Cys Arg Lys Gly Asp Ile Gly Lys Glu Met Tyr Ile Ile
485 490 495

Lys Glu Gly Lys Leu Ala Val Val Ala Asp Asp Gly Val Thr Gln Tyr
500 505 510

Ala Leu Leu Ser Ala Gly Ser Cys Phe Gly Glu Ile Ser Ile Leu Asn
515 520 525

Ile Lys Gly Ser Lys Met Gly Asn Arg Arg Thr Ala Asn Ile Arg Ser
530 535 540

Leu Gly Tyr Ser Asp Leu Phe Cys Leu Ser Lys Asp Asp Leu Met Glu
545 550 555 560

Ala Val Thr Glu Tyr Pro Asp Ala Lys Lys Val Leu Glu Glu Arg Gly
565 570 575

Arg Glu Ile Leu Met Lys Met Gly Leu Leu Asp Glu Asn Glu Val Ala
580 585 590

Ala Ser Met Glu Val Asp Val Gln Glu Lys Leu Glu Gln Leu Glu Thr
595 600 605

Asn Met Asp Thr Leu Tyr Thr Arg Phe Ala Arg Leu Leu Ala Glu Tyr
610 615 620

Thr Gly Ala Gln Gln Lys Leu Lys Gln Arg Ile Thr Val Leu Glu Thr
625 630 635 640

Lys Met Lys Gln Asn His Glu Asp Asp Tyr Leu Ser Asp Gly Ile Asn
645 650 655

Thr Pro Glu Pro Thr Ala Ala Glu
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<210> 7
<211> 1995
<212> DNA
<213> Rattus norvegicus

<220>
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<400> 7

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cat aac cat cat cct cct cct tct atc aag gcc aat ggc aaa gat gac	96
His Asn His His Pro Pro Pro Ser Ile Lys Ala Asn Gly Lys Asp Asp	
20 25 30	
cac agg gca gga agc aga cca cag tct gtg gca gct gat gat gac act	144
His Arg Ala Gly Ser Arg Pro Gln Ser Val Ala Ala Asp Asp Asp Thr	
35 40 45	
tct cca gaa cta caa agg ctg gca gag atg gat acc cct cgg agg ggg	192
Ser Pro Glu Leu Gln Arg Leu Ala Glu Met Asp Thr Pro Arg Arg Gly	
50 55 60	
agg ggt ggc ttc caa agg att gtt cgc ctg gtg ggg gtc atc agg gac	240
Arg Gly Gly Phe Gln Arg Ile Val Arg Leu Val Gly Val Ile Arg Asp	
65 70 75 80	
tgg gcc aac aag aat ttc cgt gaa gag gaa cca agg cct gac tcc ttc	288
Trp Ala Asn Lys Asn Phe Arg Glu Glu Glu Pro Arg Pro Asp Ser Phe	
85 90 95	
cta gag cgt ttc cgt ggg cca gaa ctc cag act gtg aca acc cat cag	336
Leu Glu Arg Phe Arg Gly Pro Glu Leu Gln Thr Val Thr Thr His Gln	
100 105 110	
ggg gat gac aaa ggc ggc aag gac ggc gag gga aag ggc acc aaa aag	384
Gly Asp Asp Lys Gly Gly Lys Asp Gly Glu Gly Lys Gly Thr Lys Lys	
115 120 125	
aaa ttt gaa ctg ttt gtt ttg gac cca gcc gga gac tgg tat tac cgt	432
Lys Phe Glu Leu Phe Val Leu Asp Pro Ala Gly Asp Trp Tyr Tyr Arg	
130 135 140	
tgg ttg ttt gtc att gcc atg cct gtt ctt tac aac tgg tgc ctg ttg	480
Trp Leu Phe Val Ile Ala Met Pro Val Leu Tyr Asn Trp Cys Leu Leu	
145 150 155 160	
gtg gcc aga gcc tgc ttc agt gat cta cag aga aac tat ttt gtg gta	528
Val Ala Arg Ala Cys Phe Ser Asp Leu Gln Arg Asn Tyr Phe Val Val	
165 170 175	
tgg ctg gtg ctg gac tac ttc tca gac act gtc tat atc gca gac ctc	576
Trp Leu Val Leu Asp Tyr Phe Ser Asp Thr Val Tyr Ile Ala Asp Leu	
180 185 190	
atc att cgg ctg cgc aca ggc ttc cta gaa cag ggg ctc ttg gtc aaa	624
Ile Ile Arg Leu Arg Thr Gly Phe Leu Glu Gln Gly Leu Leu Val Lys	
195 200 205	
gat ccc aag aaa ttg cga gac aac tat att cac act ttg cag ttc aaa	672
Asp Pro Lys Lys Leu Arg Asp Asn Tyr Ile His Thr Leu Gln Phe Lys	
210 215 220	
ttg gat gtg gct tct atc att ccc act gac ctt atc tat ttt gct gtg	720
Leu Asp Val Ala Ser Ile Ile Pro Thr Asp Leu Ile Tyr Phe Ala Val	
225 230 235 240	
ggg atc cac agc cct gag gta cgc ttc aac cgt cta tta cac ttt gcc	768

Gly Ile His Ser Pro Glu Val Arg Phe Asn Arg Leu Leu His Phe Ala	
245 250 255	
cgt atg ttt gag ttc ttt gac cgc act gag aca cgc acc agc tac ccc	816
Arg Met Phe Glu Phe Phe Asp Arg Thr Glu Thr Arg Thr Ser Tyr Pro	
260 265 270	
aac atc ttc cga atc agc aat ctg gtc ctt tac atc ttg gtc atc atc	864
Asn Ile Phe Arg Ile Ser Asn Leu Val Leu Tyr Ile Leu Val Ile Ile	
275 280 285	
cac tgg aat gct tgt att tat tat gtt att tct aag tcc att ggc ttt	912
His Trp Asn Ala Cys Ile Tyr Tyr Val Ile Ser Lys Ser Ile Gly Phe	
290 295 300	
gga gtt gac acc tgg gtt tac ccc aac att act gac cct gaa tat ggc	960
Gly Val Asp Thr Trp Val Tyr Pro Asn Ile Thr Asp Pro Glu Tyr Gly	
305 310 315 320	
tac ctg gct aga gag tac att tac tgt ctt tac tgg tcc aca ctg acc	1008
Tyr Leu Ala Arg Glu Tyr Ile Tyr Cys Leu Tyr Trp Ser Thr Leu Thr	
325 330 335	
ctc acc acc att gga gag aca cca ccc cct gta aag gat gag gag tac	1056
Leu Thr Thr Ile Gly Glu Thr Pro Pro Pro Val Lys Asp Glu Glu Tyr	
340 345 350	
cta ttt gtc atc ttt gac ttc ttg att ggt gtc ctc atc ttt gcc act	1104
Leu Phe Val Ile Phe Asp Phe Leu Ile Gly Val Leu Ile Phe Ala Thr	
355 360 365	
att gtg gga aat gtg ggc tcc atg atc tcc aac atg aat gcc aca cga	1152
Ile Val Gly Asn Val Gly Ser Met Ile Ser Asn Met Asn Ala Thr Arg	
370 375 380	
gca gag ttc cag gcc aag att gat gct gtc aaa cac tac atg cag ttc	1200
Ala Glu Phe Gln Ala Lys Ile Asp Ala Val Lys His Tyr Met Gln Phe	
385 390 395 400	
cga aag gtc agc aaa gac atg gaa gcc aag gtc atc aaa tgg ttt gac	1248
Arg Lys Val Ser Lys Asp Met Glu Ala Lys Val Ile Lys Trp Phe Asp	
405 410 415	
tac ttg tgg acc aat aag aag aca gta gat gaa cga gaa gtc ctc aag	1296
Tyr Leu Trp Thr Asn Lys Lys Thr Val Asp Glu Arg Glu Val Leu Lys	
420 425 430	
aac ctg cca gca aag ctc agg gct gag ata gcc att aat gtt cac ttg	1344
Asn Leu Pro Ala Lys Leu Arg Ala Glu Ile Ala Ile Asn Val His Leu	
435 440 445	
tcc act ctg aag aaa gtg cgc ata ttc cag gat tgg gaa gct ggc cta	1392
Ser Thr Leu Lys Lys Val Arg Ile Phe Gln Asp Trp Glu Ala Gly Leu	
450 455 460	
ctg gtg gaa ctg gta ctg aag ctt cgt cct cag gtc ttt agt cct gga	1440
Leu Val Glu Leu Val Leu Lys Leu Arg Pro Gln Val Phe Ser Pro Gly	
465 470 475 480	
gat tat att tgc cgt aag ggg gac att ggc aag gaa atg tac atc atc	1488
Asp Tyr Ile Cys Arg Lys Gly Asp Ile Gly Lys Glu Met Tyr Ile Ile	

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485										490					495					
aag	gag	ggc	aag	ttg	gca	gtg	gta	gct	gat	gat	ggc	gtg	act	cag	tat	1536				
Lys	Glu	Gly	Lys	Leu	Ala	Val	Val	Ala	Asp	Asp	Gly	Val	Thr	Gln	Tyr					
			500					505					510							
gcc	ttg	ctc	tca	gct	ggg	agc	tgc	ttt	ggg	gag	att	agt	atc	ctt	aac	1584				
Ala	Leu	Leu	Ser	Ala	Gly	Ser	Cys	Phe	Gly	Glu	Ile	Ser	Ile	Leu	Asn					
		515					520					525								
att	aag	ggg	agc	aaa	atg	ggc	aat	cga	cgt	act	gct	aat	atc	cgt	agc	1632				
Ile	Lys	Gly	Ser	Lys	Met	Gly	Asn	Arg	Arg	Thr	Ala	Asn	Ile	Arg	Ser					
	530					535					540									
ctg	ggc	tac	tca	gat	ctc	ttc	tgc	ttg	tcc	aag	gac	gat	ctt	atg	gaa	1680				
Leu	Gly	Tyr	Ser	Asp	Leu	Phe	Cys	Leu	Ser	Lys	Asp	Asp	Leu	Met	Glu					
545					550					555					560					
gct	gta	act	gag	gct	cct	gat	gcc	aag	aag	gtc	ctg	gag	gaa	cgg	ggg	1728				
Ala	Val	Thr	Glu	Ala	Pro	Asp	Ala	Lys	Lys	Val	Leu	Glu	Glu	Arg	Gly					
				565					570					575						
agg	gag	atc	ctg	atg	aag	atg	ggg	cta	ctg	gat	gag	aat	gaa	gtg	gca	1776				
Arg	Glu	Ile	Leu	Met	Lys	Met	Gly	Leu	Leu	Asp	Glu	Asn	Glu	Val	Ala					
			580					585					590							
gct	agt	atg	gag	gta	gat	gtt	cag	gag	aag	ctg	gaa	cag	ttg	gag	aca	1824				
Ala	Ser	Met	Glu	Val	Asp	Val	Gln	Glu	Lys	Leu	Glu	Gln	Leu	Glu	Thr					
		595					600					605								
aac	atg	gat	acc	ttg	tac	act	cgc	ttt	gcc	cgc	ctg	ctg	gct	gag	tac	1872				
Asn	Met	Asp	Thr	Leu	Tyr	Thr	Arg	Phe	Ala	Arg	Leu	Leu	Ala	Glu	Tyr					
	610					615					620									
act	ggg	gcc	cag	cag	aag	ctc	aag	caa	cgc	atc	aca	gtg	cta	gag	acc	1920				
Thr	Gly	Ala	Gln	Gln	Lys	Leu	Lys	Gln	Arg	Ile	Thr	Val	Leu	Glu	Thr					
625					630				635						640					
aag	atg	aaa	cag	aac	cat	gag	gat	gat	tat	cta	tca	gat	ggg	ata	aac	1968				
Lys	Met	Lys	Gln	Asn	His	Glu	Asp	Asp	Tyr	Leu	Ser	Asp	Gly	Ile	Asn					
				645				650						655						
act	cct	gag	cca	act	gct	gct	gaa	taa								1995				
Thr	Pro	Glu	Pro	Thr	Ala	Ala	Glu													
			660																	

<210> 8
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 <212> PRT
 <213> Rattus norvegicus

<400> 8

Met	Met	Thr	Glu	Lys	Ser	Asn	Gly	Val	Lys	Ser	Ser	Pro	Ala	Asn	Asn
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His	Asn	His	His	Pro	Pro	Pro	Ser	Ile	Lys	Ala	Asn	Gly	Lys	Asp	Asp
			20					25				30			

His Arg Ala Gly Ser Arg Pro Gln Ser Val Ala Ala Asp Asp Asp Thr
35 40 45

Ser Pro Glu Leu Gln Arg Leu Ala Glu Met Asp Thr Pro Arg Arg Gly
50 55 60

Arg Gly Gly Phe Gln Arg Ile Val Arg Leu Val Gly Val Ile Arg Asp
65 70 75 80

Trp Ala Asn Lys Asn Phe Arg Glu Glu Glu Pro Arg Pro Asp Ser Phe
85 90 95

Leu Glu Arg Phe Arg Gly Pro Glu Leu Gln Thr Val Thr Thr His Gln
100 105 110

Gly Asp Asp Lys Gly Gly Lys Asp Gly Glu Gly Lys Gly Thr Lys Lys
115 120 125

Lys Phe Glu Leu Phe Val Leu Asp Pro Ala Gly Asp Trp Tyr Tyr Arg
130 135 140

Trp Leu Phe Val Ile Ala Met Pro Val Leu Tyr Asn Trp Cys Leu Leu
145 150 155 160

Val Ala Arg Ala Cys Phe Ser Asp Leu Gln Arg Asn Tyr Phe Val Val
165 170 175

Trp Leu Val Leu Asp Tyr Phe Ser Asp Thr Val Tyr Ile Ala Asp Leu
180 185 190

Ile Ile Arg Leu Arg Thr Gly Phe Leu Glu Gln Gly Leu Leu Val Lys
195 200 205

Asp Pro Lys Lys Leu Arg Asp Asn Tyr Ile His Thr Leu Gln Phe Lys
210 215 220

Leu Asp Val Ala Ser Ile Ile Pro Thr Asp Leu Ile Tyr Phe Ala Val
225 230 235 240

Gly Ile His Ser Pro Glu Val Arg Phe Asn Arg Leu Leu His Phe Ala
245 250 255

Arg Met Phe Glu Phe Phe Asp Arg Thr Glu Thr Arg Thr Ser Tyr Pro
260 265 270

Asn Ile Phe Arg Ile Ser Asn Leu Val Leu Tyr Ile Leu Val Ile Ile
275 280 285

His Trp Asn Ala Cys Ile Tyr Tyr Val Ile Ser Lys Ser Ile Gly Phe
290 295 300

Gly Val Asp Thr Trp Val Tyr Pro Asn Ile Thr Asp Pro Glu Tyr Gly
305 310 315 320

Tyr Leu Ala Arg Glu Tyr Ile Tyr Cys Leu Tyr Trp Ser Thr Leu Thr
325 330 335

Leu Thr Thr Ile Gly Glu Thr Pro Pro Pro Val Lys Asp Glu Glu Tyr
340 345 350

Leu Phe Val Ile Phe Asp Phe Leu Ile Gly Val Leu Ile Phe Ala Thr
355 360 365

Ile Val Gly Asn Val Gly Ser Met Ile Ser Asn Met Asn Ala Thr Arg
370 375 380

Ala Glu Phe Gln Ala Lys Ile Asp Ala Val Lys His Tyr Met Gln Phe
385 390 395 400

Arg Lys Val Ser Lys Asp Met Glu Ala Lys Val Ile Lys Trp Phe Asp
405 410 415

Tyr Leu Trp Thr Asn Lys Lys Thr Val Asp Glu Arg Glu Val Leu Lys
420 425 430

Asn Leu Pro Ala Lys Leu Arg Ala Glu Ile Ala Ile Asn Val His Leu
435 440 445

Ser Thr Leu Lys Lys Val Arg Ile Phe Gln Asp Trp Glu Ala Gly Leu
450 455 460

Leu Val Glu Leu Val Leu Lys Leu Arg Pro Gln Val Phe Ser Pro Gly
465 470 475 480

Asp Tyr Ile Cys Arg Lys Gly Asp Ile Gly Lys Glu Met Tyr Ile Ile
485 490 495

Lys Glu Gly Lys Leu Ala Val Val Ala Asp Asp Gly Val Thr Gln Tyr
500 505 510

Ala Leu Leu Ser Ala Gly Ser Cys Phe Gly Glu Ile Ser Ile Leu Asn

515

520

525

Ile Lys Gly Ser Lys Met Gly Asn Arg Arg Thr Ala Asn Ile Arg Ser
 530 535 540

Leu Gly Tyr Ser Asp Leu Phe Cys Leu Ser Lys Asp Asp Leu Met Glu
 545 550 555 560

Ala Val Thr Glu Ala Pro Asp Ala Lys Lys Val Leu Glu Glu Arg Gly
 565 570 575

Arg Glu Ile Leu Met Lys Met Gly Leu Leu Asp Glu Asn Glu Val Ala
 580 585 590

Ala Ser Met Glu Val Asp Val Gln Glu Lys Leu Glu Gln Leu Glu Thr
 595 600 605

Asn Met Asp Thr Leu Tyr Thr Arg Phe Ala Arg Leu Leu Ala Glu Tyr
 610 615 620

Thr Gly Ala Gln Gln Lys Leu Lys Gln Arg Ile Thr Val Leu Glu Thr
 625 630 635 640

Lys Met Lys Gln Asn His Glu Asp Asp Tyr Leu Ser Asp Gly Ile Asn
 645 650 655

Thr Pro Glu Pro Thr Ala Ala Glu
 660